

**Seeking Clarity: Should there be a need to define “injection capacity”**

*called capacity export* means an *energy export* from the *IESO control area* that is supported by the capacity of a *generation unit* **or the injection capacity of an *electricity storage unit*** within the *IESO control area* that has committed its capacity, or a portion thereof, to an external *control area* and that capacity has been called by the external *control area operator* in accordance with section 20.3 of Chapter 7;

**Error: Need to leave the word “facility”.**

*capacity auction eligible storage resource* means a *non-committed resource* associated with an ~~*generation*~~ *electricity storage facility*, which is also a *connected facility* at the commencement of the capacity enrollment process for a given *capacity auction*, and which is registered as a ~~dispatchable *generation facility* and a dispatchable load facility~~ with the *IESO* prior to the *obligation period* in accordance with the timelines specified in the applicable *market manual*;

**Error: aggregated electricity storage unit size is not a defined term – italicized?**

*major electricity storage facility means an electricity storage facility that includes an electricity storage unit with an electricity storage unit size rated at 100 MVA or higher; that comprises electricity storage units with a rated aggregate electricity storage unit size that equals or exceeds 100 MVA; or that is re-classified as a major electricity storage facility pursuant to section 1.5.1A of Appendix 2.2 of Chapter 2 or section 7.8.2A of Chapter 4;*

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Error: *reliable* is both italicized and not throughout the document, may need to address this in Omnibus.

Error: *aggregated electricity storage facility size* is not a defined term. Change “aggregated”.

1.1.12 Each *electricity storage participant* that participates in the *IESO-administered markets* or that causes or permits electricity to be conveyed into, through or out of the *IESO-controlled grid* shall, subject to section 1.1.11, provide and maintain the following voice communication facilities for purposes of communicating with the *IESO*:

1.1.12.1 one high priority path facility and one normal priority path facility at the dispatch centre, control center and authority centre for each of its electricity storage facilities provided that either:

- a. the *IESO* has determined that a *high priority path facility* and a *normal priority path facility* are required to enable the *IESO* to maintain *reliable* operation of the *IESO-controlled grid*; or
- b. one of the applicable *electricity storage facilities* is a *major electricity storage facility*; or
- c. the *aggregated electricity storage facility size* is 100 MVA or greater.

Error: why *generator* and *electricity storage participant* not italicized

## 4. Connection Agreements

4.1.1 Each connected wholesale customer and each distributor, ~~and generator~~ and *electricity storage participant* connected to the IESO-controlled grid shall have a signed connection agreement, in such form as may be prescribed by the OEB, with the applicable transmitter with whom it is connected.

Question: *station or facility?*

7.3A.3 The IESO shall *publish, as soon as practicable following each dispatch hour, the actual electricity storage capacity (in MW) and hourly injections of energy (in MWh) for each electricity storage unit based on information provided to it by market participants. Electricity storage capacity and energy production for electricity storage units with a rated electricity storage unit size of less than 20 MVA can be aggregated by station*

Question: Is “an application has been made” sufficiently well defined?

3.8.1.3 promptly informing the IESO of any change or anticipated change in the status of any *electricity storage facility* or related equipment that it operates and that is under the *dispatch* control of the IESO as described in these *market rules* or of any other change or anticipated change in its *electricity storage facilities* or equipment that could have a *material effect on the IESO-controlled grid* or the operation of the *IESO-administered markets*. Such change shall include, but not be limited to, any change in status that could affect its range of injections and withdrawals of *energy, state of charge, the ability of an electricity storage unit to operate with automatic voltage regulation, or the availability of an electricity storage unit to provide ancillary services (unless no application has been made to provide ancillary services to the IESO-administered markets in respect of a given electricity storage unit)*;

Questions: should “maximum unit capabilities to inject electricity” not be a defined term?

3.8.1.5 providing the IESO with current information showing the *maximum unit capabilities to inject electricity, for each of its electricity storage units to facilitate dispatch in an emergency operating state. Such maximum unit capabilities shall consist of the maximum amount in MWs that can be injected at that point in time, and for how long, and shall not be limited to the unit capabilities contained in the offers submitted for such electricity storage unit pursuant to Chapter 7;*

Question: sufficient capacity from *generation capacity* reads a bit awkward.

## 4.1 Objectives

4.1.1 The objective of this section 4 is to set forth the requirements to ensure the availability of sufficient capacity from either generation capacity or electricity storage capacity and *ancillary services* to the *IESO-administered markets*.

4.5.13B The reduction in load that can be effected by curtailing withdrawals from electricity storage facilities is eligible to be treated as operating reserve that is synchronized with the IESO-controlled grid.

21.7.2 An electricity storage participant shall only offer operating reserve from the electricity storage unit registered as a dispatchable generation unit to represent its injection capabilities pursuant to Section 21.2.2a if:

21.7.2.1 the dispatchable electricity storage unit is exclusively offered as a dispatchable generation unit for the entire dispatch hour;

21.7.2.2 the dispatchable electricity storage unit registered as a dispatchable load shall not bid to withdraw energy from the real-time market nor offer operating reserve in the subsequent dispatch hour; and

21.7.2.3 the remaining duration of service at the time stipulated in the applicable market manual is greater than or equal to the period of time stipulated in the applicable market manual.

**Error: Reference to ramp up instruction is inconsistent with the withdrawals referenced in 4.5.13B**

4.9.2.1 the *IESO* may test the synchronized *ten-minute operating reserve* capability of a *generation facility or an electricity storage facility* by issuing unannounced *dispatch instructions* requiring the *generation facility or electricity storage facility* to ramp up to its ten-minute capability;

**Question: Does this make sense in the context of withdrawals? The replacement energy idea seems appropriate for generators, but appears a bit at odds with storage.**

6.3.6 A generator or electricity storage participant may, no later than the time specified in section 6.4.1, in requesting a *planned outage* in accordance with section 6.3.1, notify the IESO that the generator or electricity storage participant shall arrange replacement *energy offers* in the form of an import to support the *outage* request. A generator or electricity storage participant may, when requesting an extension to an *outage* under section 6.4.7 or resubmitting an *outage* under section 6.4.10, notify the IESO that the generator or electricity storage participant shall arrange replacement *energy offers* in the form of an import to support the *outage* extension or resubmission. For certainty, this section shall not under any circumstances impose any explicit or implicit obligation on either a generator or electricity storage participant to so notify the IESO, or if so notified, the IESO to approve or accept any such arrangement. Upon notice to the IESO, a generator or electricity storage participant may withdraw the arrangement for replacement *energy offers* at any time up to final approval of the *outage* or up to the final approval of the extension to or resubmitting of the *outage*.

**Question: Is there a gap below where we have both withdrawals and injections less than 1, and both greater than 1, but not covering where one (withdrawal or injection) is less than 1 and the other isn't?**

2.1.3.4 in the case of an *electricity storage facility*, has a maximum capacity for energy for each of injections and withdrawals, net of auxiliary requirements, of less than 1 MW.

2.2.6.8 for a *facility* that will be subject to the IESO's *dispatch instructions*, certification that the *facility* has a minimum rated *generation capacity*, net of auxiliary requirements, or a minimum *dispatchable load* capacity, of 1 MW, or for an *electricity storage facility* an ability to inject a minimum of 1 MW and withdraw a minimum of 1 MW. Individual *facilities* or units may be aggregated to meet this minimum capacity requirement if they meet the aggregation requirements of section 2.3; and

**Question: Is there an issue with the reference to regulation service given the definition of self scheduling being able to operate independently of dispatch instructions?**

21.2.3 Subject to the *market rules* governing participation in the *energy* markets and the provision of *ancillary services* to the *IESO*, a *self-scheduling electricity storage facility* may only be registered to participate in the *energy market* and to provide *reactive support service*, *voltage control service*, or *regulation service* or combinations of the foregoing, except that it shall not be registered to both participate in the *energy market* and provide *regulation service*.

*self-scheduling electricity storage facility means an electricity storage facility located within the IESO control area that can operate independently of dispatch instructions from the IESO;*

**Question: Is there validation or will non-compliance result in a NAB?**

21.5.2 For each *dispatch hour* in which both *energy offers* and *bids* are submitted in accordance with section 21.4.1, the *electricity storage participant* shall ensure that the lowest price of the *offers* submitted for that *electricity storage unit* to inject *energy* is greater than the highest price of any *bid* for that same *electricity storage unit* to withdraw *energy*.

**Question: Why is the load side italicized (i.e., defined term) and generation not.**

21.8.2a treat electricity storage injecting, or proposing to inject *energy*, as either a dispatchable or self-scheduling generation resource; and

21.8.2b treat electricity storage withdrawing, or proposing to withdraw *energy*, as either a *dispatchable load* or *non-dispatchable load*, in each case, deeming such changes to be made to the applicable provisions of such *Appendices* or applicable *market manuals* as may be necessary to give